if rewritten in independent form. Applicants respectfully request reconsideration of the rejections for the reasons discussed below.

Claim 37:

Claim 37 has been cancelled, but may be filed in a continuation application.

Claims 15, 21-24, and 44:

Claims 15, 21-24 and 44, including independent claims 15 and 24, were rejected as being anticipated by Crowley et al.

Independent claim 15 requires a dielectric solid film. Crowley et al. do not suggest a dielectric solid film. Crowley et al. disclose an insulator 72 between an electrically conducting sleeve 29 and a sound absorbent backing 48 (col. 10, lines 3-5; Figure 5). The insulator 72 is shown with a uniform thickness similar to the thickness of the stainless steel conducing sleeve 29 and the thickness of the piezoelectric element 46 (Figure 5; col. 10, lines 1-12). The shown thickness suggests a component fabricated with a particular form, not a film. Crowley et al. do not suggest using a film.

applicants spec. discloses that a film form could be used

Crowely et al. would not have used a film due to manufacturing concerns. The acoustically matched to the transducer element, electrically conductive backing material 48 is most likely cast into the volume behind the crystal 46 or cast around wire 44 with the crystal 46 placed on the uncured backing material surface to be bonded in place as the backing cures with insulator 72 acting as the backing material mold. Since any breach of integrity in the insulator 72 would result in a nonfunctional piezoelectric crystal (due to shorting between the front and back side electrodes), if the insulator 72 were a polyester film, the transducer subassembly would have to be inserted once wrapped with the insulator film into the stainless steel tubular sleeve 29 with no nicks or cuts to the film during insertion. Avoiding nicks or cuts during insertion would be very difficult with a thin polyester film.

Independent claim 24 also requires a dielectric solid film, so is allowable for the same reasons as discussed above for claim 15. Furthermore, claim 24 requires surrounding at least a portion of a circumference and one end of the ultrasound transducer. Figure 5 of Crowley et al. show the insulator 72 as a tube or cylinder with the element 46 at one end of the cylinder. One edge of the element 46 is outside or at the end of the tubular insulator 72 (top of Figure 5 near marker 52), but another edge is within the tubular insulator 72 near the end. The insulator 72 is

around a portion of the circumference of the element 46. The tubular insulator 72 extends rearward from the element, but does not surround an end portion of the transducer. Crowley et al. do not suggest a dielectric solid film surrounding at least a portion of a circumference and one end of the ultrasound transducer.

Where the insulator 72 is an electrical insulator, current between the conducting sleeve 29 is insulated from current on the wire 44. To fulfill the function used by Crowely et al., the insulator 72 would have wasted material and more difficult manufacture by positioning the insulator surrounding at least a portion of the circumference and one end. Conversely, claim 24 is directed to prevent current leakage outside the catheter and provide dielectric withstand at the surface of the catheter (see page 1, lines 14-23 of the above captioned application).

The dependent claims 21-23 and 44 are allowable for the reasons stated above for independent claims 15 and 24. Furthermore, limitations of these dependent claims further distinguish the claims. Claim 23 requires a non-conductive braid. As admitted by the Examiner in the 103 rejection, Crowley et al. fail to teach the non-conductive element being in the form of a braid. Claim 44 requires that the dielectric film surrounds at least portions of both ends of the ultrasound transducer. As discussed above, Crowley et al. do not disclose the substrate around even one end of the transducer.

Claims 17-20 and 26-28:

Dependent claims 17-20 and 26-28 depend from claims 15 and 24 and were rejected as unpatentable over Crowley et al. These dependent claims are allowable for the reasons stated above for independent claims 15 and 24. Further limitations distinguish these dependent claims from Crowley et al.

Regarding claims 17-19 and 26, the Examiner notes that Crowley et al. fail to disclose the dielectric film being a tape material, polyester firm or Mylar, but alleges that it would have been obvious since these are well known dielectric materials suitable for the intended purpose. However, Crowley et al. do not even disclose using a film. As discussed above, Figure 5 shows a thickness of the insulator 72 that may suggest a fabricated component, such as a plastic or rubber insulator, even assuming electrical verses acoustic insulation. The insulator 72 is shown with a similar dimension as the outer cover 34 of the coaxial cable 32, so a rubber insulator may be used. Due to manufacturing concerns, the insulator 72 is likely a formed piece and a person of ordinary skill in the art would not have used a film to avoid low manufacturing success.

A tape would not have been an obvious substitution. The insulator 72 is shown as being within the sleeve 29. Tape material would have made insertion or application of the insulator 72 to attach to the sleeve 29 difficult, so would not have been used. A pre-fabricated component would have been used to easily slide into the sleeve 29. Using tape around the backing 48 for later insertion into the sleeve 29 would have resulted in tape material extending past the backing at the lower portion as shown in Figure 5, thus interfering with the assembly of element 46. A flap of flexible tape could cause misalignment or interfere with placement of the element 46. Tears, nicks or scrapes to a film would have been likely and would have resulted in an inoperable transducer due to manufacturing practicality. A person of ordinary skill in the art would not have used a tape for the insulator 72. Mylar or polyester film would not have been used for similar reasons. The flexibility of the film would have interfered with assembly or made assembly difficult and time consuming for the reasons discussed above for a tape. A pre-fabricated component would have been used, not a polyester or Mylar film.

Regarding claims 20 and 27, the Examiner notes that Crowley et al. fail to disclose the thickness of less then 7 microns, but alleges that it would have been obvious where the only difference was recitation of relative size with the same performance. However, the thickness is not the only difference as discussed above. The thickness shown by Crowley et al. in Figure 5 would allow for easy and successful assembly with a pre-fabricated component as discussed above. A very thin film of 7 microns or less may result in a more difficult assembly or a lower assembly success rate (i.e. ruined assemblies). Such thin films are flexible and would bunch or prevent assembly if positioned as shown by Crowley et al. Such thin films may nick or tear, resulting in no electrical insulation is used in the transducer of Crowley et al.

Regarding claim 28, the Examiner notes that Crowley et al. fail to disclose the non-conductive element being in the form of a braid, but alleges that it would have been obvious to construct sheaths 34 or 38 in the form of a braid since these are well known insulating layers on top of conducting wires for flexibility. However, sheaths 34 and 38 are part of a coaxial cable 32 (col. 6, lines 47-56). The coaxial cable 32 is sufficiently flexible, so a person of ordinary skill in the art would not have altered the coaxial cable with braiding in order to provide the wire with flexibility as alleged by the Examiner. The coaxial cable 32 provides particular electrical performance using known materials for the sheaths 34 and 38. Substituting a braid would not have provided the desired performance and would have resulted in more difficult catheter assembly given separate conductors rather than the coaxial integrated conductors. The

coaxial cable is round, allowing rotation with the coils 26, 28 within the catheter (col. 6, lines 16-18 and 47-50; and col. 7, lines 4-7 and 55-66). Substitution of separate wires with braid coverings would have inhibited the rotation of the cables and transducer within the catheter or resulted in off-balance rotation at 1800 rpm as used by Crowley et al. Coaxial cable is used for size, performance and flexibility within the catheter of Crowley et al., so there is no suggestion to use braids or woven mesh for the non-conductive sheaths.

Crowley et al. use two coils 26, 28 for providing torque with flexibility (col. 8, line 62-col. 9, line 21). A person of ordinary skill in the art would not have used braiding in the sheaths of the coaxial cable 32 for this already provided torque and flexibility.

Claims 1-5, 7-9 and 29-36:

Claims 1-5, 7-9 and 29-36, including independent claims 1 and 29, were rejected as being unpatentable over Crowley et al. Applicants respectfully request reconsideration of the rejections for these claims for the reasons discussed below.

Claims 1 and 29 both require a non-conductive braid connected with the shaft. The Examiner noted that Crowley et al. do not teach a non-conductive braid. As discussed above for claim 28, Crowley et al. would not suggest to a person of ordinary skill in the art at the time of the invention to use a braid for the sheaths 34 or 38.

The dependent claims 2-5, 7-9 and 30-36 are allowable for the reasons stated above for independent claims 1 and 29. Furthermore, limitations of these dependent claims further distinguish the claims. Claims 2-4, 30-32 and 36 require mono-filament or other specific material. Since Crowley et al. use a coaxial cable, foam and rubber would have been used for the sheaths, not mono-filament or the other claimed specific materials. Claims 5 and 33 require that the non-conductive braid be embedded in the shaft. Crowley et al. place the coaxial cable within the interior hollow of the shaft, but do not suggest embedding the sheaths of the coaxial cable in the shaft – the shaft and the coaxial cables are kept separate by the coils 26, 28. Claim 8 requires specific braids. As discussed above, Crowley et al. do not even suggest braiding. Finally, claim 9 requires a dielectric film adjacent to the emitting surface of the transducer. As discussed above, Crowely et al. do not suggest a film.

Conclusion:

Applicants respectfully submit that all of the pending claims are in condition for

allowance and seeks early allowance thereof. If for any reason, the Examiner is unable to allow the application but believes that an interview would be helpful to resolve any issues, he is respectfully requested to call the undersigned at (312) 321-4726.

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